DIRECT TESTIMONY OF

MICHAEL D. SHINN

ON BEHALF OF

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DOCKET NO. 2019-2-E

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND CURRENT POSITION.

A. My name is Michael D. Shinn, and my business address is 220 Operation Way, Cayce, South Carolina 29033. I am currently employed by South Carolina Electric & Gas Company ("SCE&G" or "Company") as General Manager of the Fuel Procurement and Asset Management Department ("Fuel Department").

Q. PLEASE BRIEFLY SUMMARIZE YOUR DUTIES WITH SOUTH CAROLINA ELECTRIC & GAS COMPANY ("SCE&G" OR "COMPANY").

A. My responsibilities include managing the purchase and delivery of coal, No. 2 fuel oil, and limestone on behalf of the Company and as an agent for South Carolina Generating Company ("GENCO"). Also, I am responsible for uranium procurement functions for the nuclear generating facilities operated by SCE&G. These responsibilities include the contracting for natural uranium and conversion services.

Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND YOUR BUSINESS EXPERIENCE.

A. I earned a Bachelor of Science Degree in Mechanical Engineering from the University of South Carolina in Columbia, South Carolina, in 1995. While in college, I was a student intern in the Fossil Hydro Power Plant Performance Group for five years. Since graduation, I have held various positions within the Fuel Department to include managing rail transportation and delivery, spot coal purchasing, coal quality management, synthetic fuel optimization, and state and federal regulatory reporting. While Manager of Fuel Technical Services, Industrial Coal and Synfuel, I worked with coal suppliers and SCE&G's power plants to increase fuel and transportation flexibility as well as to maximize the utilization of the Company's assets. In December 2009, I was promoted to General Manager of the Coal and Oil Procurement Department, and in January 2016, I assumed my current position.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to describe the procurement and delivery activities for coal and No. 2 fuel oil used in electric generation for SCE&G as well as GENCO's Williams Station for the period January 1, 2018, through December 31, 2018 (the "Review Period"). I also discuss changes that have occurred in coal markets since the last annual fuel adjustment hearing and how these changes affected coal procurement during the Review Period. My testimony also describes the procurement and delivery of limestone for our wet scrubbers located at the Wateree and Williams steam plants. Finally, my testimony explains the nuclear fuel purchasing process for SCE&G generation and discusses uranium prices for the Review Period and the near-term outlook.

Q. PLEASE DESCRIBE GENCO AND ITS RELATIONSHIP TO SCE&G.

A. GENCO was incorporated on October 1, 1984 and owns Williams Electric Generating Station. GENCO sells to SCE&G the entire capacity and output from Williams Station under a Unit Power Sales Agreement approved by the Federal Energy Regulatory Commission. Hereafter, when I refer to SCE&G's fossil steam plants, I include GENCO.

COAL, NO. 2 FUEL OIL, AND LIMESTONE PURCHASING

Q. PLEASE SUMMARIZE SCE&G'S FUEL PROCUREMENT NEEDS AND PURCHASING PRACTICES FOR SCE&G'S FOSSIL PLANTS.

A. The Fuel Department purchases all coal, No. 2 fuel oil, limestone, and associated transportation for SCE&G's fossil plants focusing on reliability of supply, conformity with operational and environmental requirements, and reasonable prices.

Q. WHAT WAS THE BURN RATE FOR COAL IN 2018 AND WHAT DO YOU EXPECT THE BURN RATE FOR COAL TO BE IN 2019?

A. In 2018, SCE&G consumed 3,340,199 tons of coal in the production of electricity for its customers. This amount was within 0.16% of the coal consumed in 2017.

The Company projects that its burn rate for coal in 2019 will be approximately 2,581,384 tons. This projected burn rate is based on normal weather, the Company's projections of coal and natural gas prices, and the economic dispatch of units.

Q. HOW DOES THE COMPANY SECURE NECESSARY QUANTITIES OF COAL AND NO. 2 FUEL OIL AT COMPETITIVE PRICES?

A. Coal is procured under long-term (more than one year) and spot purchase (up to one year) agreements to achieve a balance of reliable supplies while maintaining flexibility to react to market changes or short-term system needs. Under historic market conditions, SCE&G seeks to have long-term purchases represent approximately 75% to 80% of projected system demand. Spot purchases provide a mechanism to manage inventories and react to short-term changes in the marketplace, and generally represent 20% to 25% of projected system demand.

In contrast to the complexities of coal purchasing contracts, contracts for No. 2 fuel oil are requirements contracts that are competitively solicited every two years.

Generally, pricing for these contracts is based upon market indices that are adjusted daily.

SCE&G maintains an active list of qualified suppliers of coal and No. 2 fuel oil. Typically, as contracts expire or needs are identified, solicitations are issued for competitive sealed bids. Responses to these solicitations inform our knowledge of market demand and prices. Moreover, because the responses to these solicitations often include proposals for coal supplies with specifications different than the requested specifications, these responses also aid our ongoing efforts to ascertain price differences for varying qualities of fuels.

Q. PLEASE SUMMARIZE THE COMPANY'S COAL PURCHASES DURING THE REVIEW PERIOD.

A. The Company took delivery of 2,226,228 tons of coal under long-term agreements and 1,053,656 tons of coal through spot purchases during the Review Period. As a whole, long-term agreements provided 67.88% of the requirement for the Company's coal-fired stations, while spot purchases accounted for the remaining 32.12% of SCE&G's coal requirements during 2018. In summary, operational considerations, weather, fuel market conditions, and economic dispatch of the Company's generating assets combined to impact SCE&G's balance of coal purchases in the Review Period, driving the Company to rely more heavily on short-term agreements to meet its requirements for coal.

Q. FOR 2019, PLEASE EXPLAIN THE COMPANY'S PLANS FOR ADDRESSING ITS NEEDS FOR COAL SUPPLIES UNDER LONG-TERM CONTRACTS AND SPOT PURCHASES.

A. SCE&G anticipates soliciting suppliers of coal for additional long-term contracts in 2019. The Company currently has contracts in place that is projected to meet a balance of approximately 65.01% of coal supplies through long-term contracts and approximately 34.99% through short-term contracts in 2019. However, this balance may not be achieved because of market conditions, weather, and operational considerations. The Company plans to maintain the flexibility to manage its coal inventories and purchase the most competitively priced fuel being ever mindful that its burn rate has the potential to fluctuate widely due to market conditions and changes in the price of coal or natural gas which may result in imbalances of fuel supply and demand. In sum, the Company will continue to evaluate market conditions carefully, always seeking to purchase coal supplies for our customers at economically reasonable prices while ensuring that the Company's service commitments are reliably and prudently met.

Q. HOW MUCH COAL DOES SCE&G PLAN TO PURCHASE IN 2019 UNDER LONG-TERM CONTRACTS?

A. SCE&G currently has long-term contracts with seven suppliers for the delivery of 1.8 million tons of coal. This quantity represents 65.01% of SCE&G's expected total coal receipts for 2019. The coal purchased under these contracts ranges in quality from 12,500 to 12,700 British Thermal Units ("BTU") per pound and from 1.00% to 1.63% sulfur content. These contracts are for an initial period of three years, and some of the contracts have options to renew. The amount of coal under contract will vary from year to year, and the contract terms will vary from contract to contract.

During 2019, the Company will continue to carefully evaluate its need for coal in future periods. We anticipate that SCE&G will negotiate additional commitments for coal supply for 2020 and beyond seeking to maintain a reasonable balance between coal supplied under long-term contracts and spot purchases while obtaining coal at reasonable prices and ensuring that the Company's supply requirements are reliably and prudently met.

Q. FOR 2019, PLEASE EXPLAIN THE COMPANY'S CURRENT PLANS FOR ADDRESSING ITS NEEDS FOR COAL SUPPLIES UNDER SHORT-TERM CONTRACTS.

A. The Company currently has spot contracts with seven suppliers for the delivery of 439,000 tons of coal. This quantity represents 15.81% of SCE&G's expected total coal receipts for 2019. The purchase of the remainder of the Company's expected coal purchases in 2019 of 19.18% (100% - (65.01% long-term + 15.81% short-term) = 19.18%) will be heavily dependent on weather and the generation produced at the other generation assets employed by SCE&G. The Company will make additional spot or long-term purchases as needed to ensure that sufficient supply is available for its electricity generation needs at a reasonable price. Acquiring coal supplies in this manner will provide SCE&G with the flexibility to manage its generation assets in the most cost-effective way, which can vary from month to month.

Q. GIVEN THE STATE OF THE DOMESTIC COAL MARKET, WILL SUFFICIENT SUPPLIES OF COAL BE AVAILABLE ON THE SPOT MARKET TO MEET THE COMPANY'S GENERATION NEEDS?

A. With utilities across the country relying more heavily on natural gas generation facilities, the demand for coal in the domestic market has continued to fluctuate. Export coal demand was strong in 2018 which resulted in a challenging environment for the procurement of spot coal. Even given the above coal suppliers continued to produce but at diminished levels and with less capacity to increase production if needed due to demand. While the Company does not anticipate that these market conditions will change in the short-term, current supply forecasts indicate coal supplies will remain available but may be limited depending on international demand.

Q. HOW DOES SCE&G ENSURE THAT THE RIGHT QUANTITY OF FUEL SUPPLIES IS AVAILABLE TO MEET GENERATION DEMANDS AT ITS FOSSIL FUEL FACILITIES?

A. SCE&G uses several steps to bring the fuel supply and demand factors together. Fuel usage levels are calculated and forecasted for each of the generating plants. Coal and No. 2 fuel oil inventories are then validated and contract quantities are summed and compared against system usage to determine needs going forward. With this information, the Fuel Department carefully evaluates the Company's coal requirements and determines whether transportation options under current contracts, spot purchases, or additional long-term agreements are appropriate. Through this process, SCE&G has been successful in leveraging long-term and short-term coal purchases to achieve reasonable purchase prices while ensuring the reliability of coal supplies necessary to support system needs.

No. 2 fuel oil is purchased to ensure adequate back up to natural gas for SCE&G's intermediate and peaking generators. Typically, fuel storage tanks are filled going into peak usage periods.

Q. HOW DOES THE COMPANY DETERMINE A "REASONABLE PRICE" FOR COAL AND NO. 2 FUEL OIL PURCHASES?

A. The Fuel Department works diligently to achieve an optimization between adequate fuel supplies of acceptable quality at reasonable purchase prices. The ultimate value of the delivered fuel (coal or No. 2 fuel oil) is determined by the actual delivered cost per Million British Thermal Units ("MMBTU"), accounting for any fuel impacts in the operation of our generating plants. Market prices fluctuate due to such things as seasonality, political turmoil, national weather trends, and domestic/international supply/demand imbalances. SCE&G continuously evaluates factors that impact prices, while employing contract strategies such as predetermined price adjustments, price collars, and quarterly adjustments to mitigate the effect market conditions have on coal contracts. Market publications, indices, industry solicitations, trade associations, and interacting with market participants are some of the sources and methods that we use to stay abreast of market trends and conditions.

Q. HOW DOES THE COMPANY MANAGE COAL INVENTORIES TO ENSURE RELIABILITY AND AVAILABILITY?

A. To maintain adequate supply at its coal-fired generating facilities, the Company continuously manages inventories using long-term contracts, spot market purchases, and transportation options. The Company used these tools in support of its efforts to maintain an inventory of approximately 680,000 tons of coal during the Review Period based on the average of each of 12 months' ending inventories to support anticipated consumption during the Review Period and to maintain enough coal to run each coal unit at full capacity for approximately 45 days. This methodology allows for an inventory of more than 680,000 tons at the beginning of high demand periods and less than 680,000 tons entering the milder months. This targeted inventory level aids in protecting SCE&G and its customers against lack of coal availability as well as against production and delivery problems that may arise from time to time. The coal inventory is also an immediately available resource to meet our supply needs when short-term market prices are unfavorable. A crucial aspect of the Company's inventory management is balancing its short-term needs against long-term requirements and expected future operating conditions.

Q. PLEASE PROVIDE AN OVERVIEW OF TRANSPORTATION SERVICES DURING THE REVIEW PERIOD.

A. In 2018, CSX Transportation, Inc. ("CSX") remained the primary rail transporter of coal for SCE&G. While the CSX contract rates remained relatively stable during 2018, the rates were subject to quarterly adjustments according to indices published by the American Association of Railroads. SCE&G executed a new contract with CSX that began on March 1, 2018. Under the new contract, SCE&G realized significant reductions in the cost of freight.

The Company also was under a long-term contract with Norfolk Southern Railway Company during a portion of the Review Period. The long-term contract with Norfolk Southern expired on June 30, 2018.

Q. DOES SCE&G HAVE ACCESS TO INTERNATIONAL COAL SUPPLIES?

A. Yes. Although the Company did not receive any deliveries of international coal during the Review Period, SCE&G has the capability of obtaining and transporting imported coal to its coal generation facilities on a spot or as-needed basis when prices for international coal are competitive with domestically produced coal.

Q. PLEASE DESCRIBE THE STATE OF THE INTERNATIONAL COAL MARKET IN WHICH SCE&G PARTICIPATES AND ITS CURRENT PLANS REGARDING IMPORT COAL.

A. International coal prices have fluctuated over the Review Period, with the Company continuing to monitor the market for use of international coal in SCE&G's system. Demand for coal in the international market from US ports has been strong in the Review Period. Coal shipments increased because domestic coal prices were competitive in the global market, and those coal exports are expected to remain strong into 2019.

SCE&G will continue to monitor and remain informed of opportunities to purchase international coal as part of its ongoing effort to reduce fuel costs for both SCE&G and its customers and to ensure that an adequate supply of coal is available to meet its generation needs.

Q. WHAT WERE SCE&G'S DELIVERED COAL COSTS FOR THE REVIEW PERIOD?

A. SCE&G's average delivered cost in dollars per MMBTU by month for coal purchased for steam plants during the Review Period is set forth in Table 1.

Table 1

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
$3.39	$3.51	$3.24	$3.27	$3.13	$3.27	$3.17	$3.18	$3.32	$3.25	$3.45	$3.38

Q. WHAT CHANGES DOES THE COMPANY ANTICIPATE IN THE COAL MARKET FOR THE 2019 FORECASTED PERIOD?

A. SCE&G's coal prices for the forecasted period are expected to fluctuate around current levels depending on SCE&G's need for spot coal. Over the past 12 months, the price per ton of CAPP coal increased from $63.90 per ton on January 5, 2018, to $75.25 per ton on December 28, 2018, representing an approximately 15% price increase. Spot coal prices have been stable in January 2019 at approximately $76.00 per ton.

CAPP coal prices will be affected by a dwindling active coal reserve base, a lower amount of coal suppliers operating in the current market, Environmental Protection Agency ("EPA") and Mine Safety and Health Administration regulations, and the redeployment of capital dollars away from coal mining. These mounting issues have led to a more limited ability to borrow money for recapitalization of mines in general, and the inability of mining companies to acquire new mining permits. These factors will continue to put upward pressure on coal production costs during 2019 and beyond. Notwithstanding these upward pressures, the Company expects coal prices will increase as spot coal is purchased in an elevated market and as long-term solicitations are received and concluded in

2019. Supply is expected to be stable and obtainable based primarily on the continued supply of low cost natural gas, new combined-cycle gas generation capacity being added inside and outside of SCE&G's service area, and continued decommissioning of coal consuming power plants, all of which reduces the demand for coal.

Q. WHAT ADDITIONAL STEPS IS THE COMPANY TAKING TO MITIGATE FUEL-RELATED EXPENSES?

A. SCE&G continuously tries to reduce costs by purchasing coal of lower quality where practicable and acceptable to a coal-burning plant. During 2018, SCE&G elected to take delivery of coals purchased mainly from the Central Appalachia as well as purchasing coal from Northern Appalachia. Generally, these coals could be purchased at a lower delivered cost than lower quality coals purchased directly from a Central Appalachian coal supplier while maintaining the reliability of the coal units. These coals were consumed at SCE&G's Cope, Williams, and Wateree Stations. SCE&G will continue with this practice until it is no longer beneficial or different coals need to be purchased for testing.

Q. WHAT HAS BEEN THE RECENT PRICING TREND IN THE NO. 2 FUEL OIL INDUSTRY?

A. Delivered No. 2 fuel oil average monthly prices during the Review Period ranged from a low of $14.31/MMBTU in March 2018 to a high of $22.10/MMBTU in February 2018.

Set forth below is Table 2 that shows the average system delivered No. 2 fuel oil prices in dollars/MMBTU for the Review Period for No. 2 fuel oil purchased for steam plants, gas turbines, and combined cycle units.

Table 2

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
$16.00	$22.10	$14.31	$15.68	$16.88	$16.66	$16.33	$16.24	$16.84	$17.83	$16.75	$14.51

Q. WHAT RESPONSIBILITIES DOES THE FUEL DEPARTMENT HAVE WITH RESPECT TO SO_2 AND NO_X ALLOWANCES?

A. The Fuel Department purchases or trades EPA sulfur dioxide ("SO_2") and nitrogen oxides ("NO_x") emission allowances as needed by SCE&G to compensate for its SO_2 emissions. However, SCE&G currently is emitting less than its SO_2 and NO_x emission allowances allocated to it by the EPA. For this reason, the Company was not required to purchase SO_2 and NO_x emission allowances. The Company also does not anticipate having to buy any SO_2 or NO_x emission allowances in 2019.

Q. PLEASE EXPLAIN THE FUEL DEPARTMENT'S ACTIVITIES RELATED TO THE PROCUREMENT OF LIMESTONE FOR SCE&G'S POLLUTION CONTROL FACILITIES.

A. The Fuel Department is responsible for securing adequate and reliable supplies of limestone for the effective operation of wet limestone scrubbers at the Company's Wateree and Williams Stations. There continues to be limited suppliers for limestone for Williams and Wateree Stations. During the Review Period, the Company acquired all of its supplies of limestone from a single source, which has proven to be effective and market priced.

The limestone is delivered to Williams and Wateree Stations by truck since the current source of supply is located near the plants. In summary, the Company continues to evaluate supply and transportation options designed to ensure adequate and reliable supplies of limestone at reasonable prices at its Williams and Wateree Stations.

NUCLEAR FUEL PURCHASING

Q. PLEASE DESCRIBE THE NUCLEAR FUEL CYCLE.

A. Uranium ore is the source of fuel used to generate electricity in nuclear reactors. Naturally occurring uranium primarily consists of two isotopes, 0.7% Uranium-235 and 99.3% Uranium-238. As depicted in Exhibit No. __ (MDS-1) attached hereto, uranium must undergo a series of processes to produce a useable fuel before it can be used in a reactor for electricity generation. These processes are mining and milling, conversion, enrichment, and fabrication. In the first stage, uranium is mined. Once the ore is mined it is sent to a mill where it is crushed into smaller pieces and then introduced to a slurry in which a strong mixed solution is used to dissolve the uranium. At this point in the mining and milling process, the uranium is then dried and commonly referred to as yellowcake, also known as uranium oxide (“U_3O_8”) concentrate. In the next step of the process, known as conversion, the U_3O_8 goes through a chemical process in which it is converted into uranium hexafluoride (“UF_6”). The UF_6 then becomes the feedstock required in the isotopic separation process, known as enrichment. Once the UF_6 is enriched to the desired level, it is converted to uranium dioxide (“UO_2”) powder and formed into pellets. This process, and the subsequent steps of inserting the fuel pellets into fuel rods and bundling the rods into fuel assemblies for use in nuclear reactors, is referred to as fabrication.

Q. PLEASE DESCRIBE HOW YOUR DEPARTMENT MAKES PURCHASING DECISIONS FOR NUCLEAR FUEL.

A. During the Review Period, the responsibilities related to nuclear fuel procurement were shared between my Department and the Nuclear Design and Analysis department (“NDA”). NDA prepared a forecasted refueling schedule which is reviewed by my Department on an annual basis. This forecast formed the foundation for the nuclear fuel requirements forecast. Once the nuclear fuel requirements forecast was developed, the Fuel Department was primarily responsible for procuring U_3O_8 and conversion services and NDA was primarily responsible for procuring enrichment and fabrication services. Collectively, my Department and NDA form the Nuclear Fuel Procurement team ("Team"). The Team determined nuclear fuel requirements, shared market information and reviewed offers related to all segments of the nuclear fuel cycle.

Q. ARE SCE&G'S CONTRACTS TO PURCHASE NUCLEAR FUEL NORMALLY SHORT-TERM OR LONG-TERM?

A. Due to the long lead time required to process uranium prior to being loaded in SCE&G's reactor, the Company's contracts are normally long-term contracts, with a term in excess of one year. Currently the Company has long-term commitments for uranium and conversion services, enrichment and fabrication for V.C. Summer Unit One. During the Review Period, the Team monitored the nuclear fuel market on an ongoing basis and evaluated spot market opportunities from time to time that may supplement long-term contract supplies as appropriate. Included in the procurement process is the Company's contingency reserve. The nuclear fuel contingency reserve targets are designed to provide security of supply for future requirements by mitigating potential market disruptions.

Q. PLEASE DESCRIBE THE MOVEMENT OF NUCLEAR FUEL PRICES DURING THE CURRENT REVIEW PERIOD.

A. The nuclear fuels market is comprised of two types of pricing scenarios: spot and long-term. Spot prices typically represent any transaction taking place within a year while long-term prices require a commitment for some period beyond one year. Each of the nuclear fuel processes can be purchased individually or bundled at any point in the fuel cycle, with the exception of fabrication. Fabrication is a complex process that has specific requirements for each individual reactor and therefore is typically sourced to a single supplier with long-term agreements. Over the past few years short-term and long-term prices for uranium, conversion, and enrichment have remained stable. In the near term, prices for uranium and the other processes in the nuclear fuel cycle are anticipated to continue to remain stable for both short-term and long-term pricing.

Q. DURING THE REVIEW PERIOD, DID THE COMPANY EXPERIENCE ANY ISSUES CONCERNING ITS PROCUREMENT OF NUCLEAR FUEL?

A. Yes. SCE&G currently procures UF_6 pursuant to a long-term contract with Cameco, Inc. ("Cameco"). This contract provides that, if there is a reduction in the total quantity of electricity that the Company will generate at V.C. Summer, SCE&G has the right to elect to reduce the quantity of UF_6 SCE&G otherwise was supposed to receive. As a result of the delays experienced with the construction of Units 2 and 3 at V.C. Summer, SCE&G exercised this right in 2016 so as to reduce its future deliveries of UF_6. Following the abandonment of the Units, SCE&G again exercised this right in 2017 so as to further reduce its future UF_6 needs.

Q. HOW DID CAMECO RESPOND TO SCE&G EXERCISING ITS RIGHTS TO REDUCE ITS FUTURE DELIVERIES?

A. On November 8, 2018, Cameco notified SCE&G that it disputed the Company's decision to reduce future UF_6 deliveries and, on December 29, 2018, elected to submit the dispute to binding arbitration as provided in the contract. Although this matter is in its initial stages, SCE&G intends to vigorously challenge Cameco's claims and to fully defend its contractual rights to elect to reduce these deliveries. The Company will update the Commission as to the status of this issue in future fuel proceedings.

CONCLUSION

Q. WHAT REQUEST DOES SCE&G MAKE OF THE COMMISSION IN THIS PROCEEDING?

A. The Fuel Department has made reasonable and prudent efforts to obtain reliable, high quality supplies of coal, No. 2 fuel oil, and limestone and associated transportation at the lowest possible cost to SCE&G's customers. Likewise, the Fuel Department made reasonable and prudent efforts to obtain market-based prices and reliable supply for its nuclear fuel needs for electric generation and procured at reasonable prices the necessary capacity for delivery of that supply. Therefore, on behalf of SCE&G, I respectfully request that the Commission find that the Company's fuel purchasing practices were reasonable and prudent for the Review Period.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

The Nuclear Fuel Cycle